

1. An apparatus for providing roof support in an underground mine, comprising:

(a) a round, dome-shaped support member having an extended lateral surface for contacting an inside roof of an underground mine;

and

(b) a center aperture in said support member for accommodating a roof bolt such that said roof bolt can be passed through said support member to secure said support member to the roof of said underground mine.

2. The apparatus as set forth in Claim 1, further comprising a base plate associated with said roof bolt, wherein said roof bolt passing through said base plate is adapted such that said support member is interposed between said base plate and the inside roof of said underground mine.

3. The apparatus as set forth in Claim 1, wherein said support member is recessed and said extended lateral surface comprises a circular configuration in the general form of a plate.

4. The apparatus as set forth in Claim 3, wherein said support member features a center deflection with respect to the radial edge of said support member such that said support member is convex with respect to the mine roof surface.

5. The apparatus as set forth in Claim 2, wherein said support member is elliptical with a circular configuration in the form of a plate.

6. The apparatus as set forth in Claim 5, wherein said support member features a center deflection with respect to the radial edge of said support member such that said support member is convex with respect to the mine roof surface.

7. In combination with a roof bolt and associated base plate used for primary roof support in an underground mine, the improvement comprising: a round dome-shaped support member having an extended lateral surface for contacting an inside roof of an underground mine, and further defining an aperture therethrough such that said roof bolt can be passed through said base plate and the aperture of said support member to secure said support member to the inside roof of said underground mine, with said support member interposed between said base plate and the inside roof of said underground mine.

8. The apparatus as set forth in Claim 7, wherein said support member has a substantially circular or elliptical configuration.

9. The apparatus as set forth in Claim 8, wherein said support member features a center deflection with respect to the radial edge of said support member such that said support member is convex with respect to the mine roof surface.

10. A method for providing primary and secondary roof support in a underground mine, comprising the steps of:

(a) drilling a hole through a roof of the underground mine and into upper level rock strata;

5 (b) inserting a container of adhesive material into said hole;

(c) positioning a lateral support member adjacent the roof of said underground mine centered over said hole;

(d) positioning a round dome-shaped base plate adjacent said lateral support member; and

10 (e) inserting a roof bolt through said base plate and said support member into said hole, the insertion of said roof bolt fracturing the container of adhesive material, thus allowing said adhesive material to be distributed around said roof bolt, securing said roof bolt in said hole and securing said base plate and support
15 member to the roof of said underground mine for providing primary and secondary roof support.

11. The method as set forth in Claim 10, wherein said support member features a center deflection with respect to the radial edge of said support member such that said support member is convex with respect to
20 the mine roof surface.

12. A roof bolt plate apparatus, comprising:

(a) a round or elliptical dome-shaped plate;

(b) a recessed center higher than the outer rim; and

(c) strengthening ribs to adjust the strength as needed for extreme roof conditions.

13. A roof bolt plate apparatus as set forth in Claim 12, further comprising;

5 (d) an outer rim only as wide as the material used to produce the plates.

14. A roof bolt plate apparatus as set forth in Claim 13, wherein said roof bolt plate comprises a positive pressure roof support.

10 15. A method of supporting a roof in an underground mine, comprising:

(a) providing a plate acting as a lock washer to the roof bolt;

(b) providing a round or elliptical dome-shaped plate having apertures for hanging cables;

15 (c) providing a plate having a recessed center lower than the outer rim and having a recessed center such that the head of the bolt will be partially protected, when installed in the roof;

(d) providing a plate outer rim conforming to regular or irregular roof surfaces; and

20 (e) providing a plate adjustable in strength by adding a rib to the domed area of the plate.

16. A method of supporting a roof in an underground mine as set forth in Claim 15, further comprising installing and monitoring plate effectiveness by the lock washer effect in the mine.

17. A method as set forth in Claim 15, wherein said safety plate
5 recessed center reduces injuries to personnel and damage to the roof control system by passing equipment.

18. A method as set forth in Claim 15, further comprising providing a system for hanging cables and wires and maintaining dangerous electrical cables and wires close to the roof, and out of harms way.

10 19. A method as set forth in Claim 16, wherein said safety plate recessed center reduces injuries to personnel and damage to the roof control system by passing equipment.

20. A method as set forth in Claim 17, further comprising providing a system for hanging cables and wires and maintaining dangerous
15 electrical cables and wires close to the roof, and out of harms way.